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TETRA TECH

Kevin Scott
Project Manager

May 4, 2010

Mr. Dwayne Harrington (211MS211)
U.S. Environmental Protection Agency Region 2
Raritan Depot
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**Subject: Final Sampling and Analysis Plan**
**Riverside Avenue Site**
**Riverside Avenue, Newark, Essex County, New Jersey**
**EPA Contract No. EP-S7-06-01**
**TDD No. 0178**
**Document Tracking No. 0985**

Dear Mr. Harrington:

Tetra Tech EM Inc. (Tetra Tech) is submitting the final sampling and analysis plan (SAP) for the Riverside Avenue Site located at 21-47 Riverside Avenue in Newark, New Jersey. If you have any questions regarding the final SAP, please contact me at (215) 768-8116.

Sincerely,

K Scott

Kevin Scott
Project Manager

Enclosure

cc: TDD File

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# FINAL SAMPLING AND ANALYSIS PLAN
# RIVERSIDE AVENUE SITE
# NEWARK, NJ

*Prepared for*

**U.S. Environmental Protection Agency Region 2**
USEPA Facilities Raritan Depot
Woodbridge, NJ 08837-3679

*Prepared by*

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EPA Contract No. EP-S7-06-01

Technical Direction Document No. 0178
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May 4, 2010

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Approved by

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# 1.0 INTRODUCTION

Under Eastern Area Superfund Technical Assessment and Response Team (START) Contract No. EP-S7-06-01, Technical Direction Document (TDD) No. 0178, U.S. Environmental Protection Agency (EPA) Region 2 tasked Tetra Tech EM Inc. (Tetra Tech) to conduct a site removal assessment at the Riverside Avenue Site located at Riverside Avenue, off of Route 21 in Newark, NJ. The sampling event will include the collection of liquid and solid samples (if available) from on-site tanks and water and pigments located within site buildings and to determine if asbestos-containing materials are present in pipe insulation located within an on-site building.

The purpose of the sampling and analysis plan (SAP) is to provide an outline of the sampling and analysis activities that support the assessment. This SAP provides site background information in Section 2.0; presents the project objective and data use, proposed field investigation, analytical parameters in Sections 3.0, 4.0, and 5.0; summarizes quality assurance (QA) and quality control (QC) procedures in Section 6.0; identifies project deliverables in Section 7.0; and provides a project schedule in Section 8.0. All references cited in this plan are listed in Section 9.0. Tetra Tech Standard Operating Procedures (SOP) cited in the text of this SAP are included in Appendix A.

# 2.0 BACKGROUND

This section describes the site location, presents a description and history of the property, and summarizes previous investigation activities conducted on and in the vicinity of the Riverside Avenue Site.

## 2.1 SITE LOCATION AND LAYOUT

The Riverside Avenue Site is located off Route 21 in Newark, New Jersey (see Figure 1, Site Location Map). The geographic coordinates for the approximate center of the site are 40.4556 degrees north latitude and 74.0935 degrees west longitude. The site is currently owned by the

**FIGURE 1 – SITE LOCATION MAP**

City of Newark, NJ and is located at 1712 & 1712 - 1716 Riverside Avenue, in a former industrial area adjacent to the Passaic River. The approximately 1.48 acre site is bordered to the east by the Passaic River, to the west by the N/F Erie-Lackawanna Railroad and McCarter Highway, NJ Route 21, to the north and south by private buildings. The site is currently not in use and has been inactive since approximately 1993. Two multi-floored structures, identified as Building #7 (three-story) and Building #12 (five-story) are currently located on the site. Building #7 is located in the southern portion of the site, adjacent to the Passaic River. A current aerial view of the site can be seen on Figure 2, Site Layout Map.

## 2.2 SITE HISTORY

The site has been used for industrial activities since 1909. From 1909 through 1983, various operators utilized the property for the manufacture of paints and varnishes. From around 1931 through 1973, the property was a small part of a much larger facility owned and operated by Pittsburgh Paint & Glass Company. The property has been occupied by various operators from 1973 through 1993, when the current owner, the City of Newark obtained the property through foreclosure (Weston 2009).

**FIGURE 2 – SITE LAYOUT MAP**

## 2.3 PREVIOUS INVESTIGATIONS

In 2009, Weston Solutions was retained by the City of Newark Department of Economic Development and Housing to perform a preliminary assessment of the site. The preliminary assessment was completed to identify existing and/or potential areas of concern (AOC). Weston identified 11 AOCs during the preliminary assessment. After completion of the preliminary assessment, PMK Group, Inc. (Birdsall 2009) was retained by the Brick City Development Corporation to conduct an environmental site investigation (SI) for the property (Birdsall 2009). The SI was completed to address the conclusions and recommendations presented in the preliminary assessment report and to address issues regarding the planned redevelopment of the property, including the demolition of the two existing structures and site improvements including possibly the construction of a new facility. Given the site history, it was assumed that the SI would reveal environmental impacts above New Jersey Department of Environmental Protection (NJDEP) criteria; therefore, the SI strategy was to provide a "presence/absence" determination of environmental impacts expecting that an extensive remedial investigation would be required to delineate and define site conditions. Seven of these 11 AOCs identified in the preliminary assessment were investigated as part of the SI. The AOC's identified in the preliminary assessment which were investigated in the SI are shown in Table 1 below.

**TABLE 1**

**AREAS OF CONCERN SUMMARY**

| AOC Identifier | Description |
|---|---|
| AOC A-1 | Above ground storage tanks and associated piping |
| AOC A-2 | Underground storage tanks and associated piping |
| AOC A-3 | Piping, above ground and below ground pumping stations, sumps and pits |
| AOC B-1 | Storage pads; including drum & waste storage |
| AOC C-1 | Floor drains, trenches and piping sumps |
| AOC D-1 | Waste piles |
| AOC D-2 | Open pipe discharges |
| AOC E-1 | Electrical transformers & capacitors |
| AOC E-1A | Discolored or spill areas |
| AOC F-1 | Loading or transfer areas |
| AOC G-1 | Freight elevators |

Notes: Shaded rows indicate AOCs that were investigated during SI.
AOC = Area of concern.

The SI field activities were completed between August and October 2009 and included a geophysical survey, collection of soil and groundwater samples and samples of basement water located within Building #7. The results of the geophysical survey indicated nine possible underground storage tanks (UST) located east of Building #12. Analytical results from soil samples collected from areas surrounding the identified AOCs indicated exceedances of NJDEP criteria for total petroleum hydrocarbons, volatile organic compounds (VOC), semivolatile organic compounds (SVOC), metals and polychlorinated biphenyls (PCBs). Two groundwater samples were collected from the site, one directly downgradient of AOC A-2 (location of USTs east of Building #12) and one collected west of Building #7, downgradient to AOC F-1 (the loading dock). Fingerprint analysis of the groundwater sample collected downgradient of AOC A-2 indicated the presence of mineral spirits and fuel oil No. 4. The groundwater sample collected downgradient of AOC F-1 indicated the presence of VOC, SVOC and metal exceedances of NJDEP groundwater quality criteria (GQC) for Class II-A aquifers. The basement water sampling results revealed VOCs, SVOCs, PCBs and metals exceeding the applicable NJDEP GQC for Class II-A aquifers.

PMK also investigated ten USTs identified east of Building #12. Nine out of the10 tanks contained either liquid or sludge, one tank contained soil. Samples collected from the USTs were analyzed for priority pollutants (PP +40). Results showed benzene (up to 169 micrograms per liter [ug/L]), ethylbenzene (up to 12,100 ug/L), toluene (up to 77,000 ug/L), total xylene (up to 25,700 ug/L), and 2-butanone (up to 17,000 ug/L).

On October 29, 2009, NJDEP responded to an oil spill that stretched for a ¼-mile in the Passaic River. The source of the spill was identified at low tide when a pipe leaking black, viscous oil was exposed. The pipe was traced back to two above ground storage tanks located on the site in the basement of Building #12. The tanks were connected directly to a sewer line that eventually discharged into the Passaic River. NJDEP requested assistance from EPA to respond to the spill. The EPA Emergency and Rapid Response (ERRS) contractor secured the tanks and sewer line in the basement of Building #12 to prevent further discharge. Field screening results indicated that the oil was No. 4 heating oil. An estimated 500-gallons of No. 4 heating oil was spilled into the Passaic River during this incident.

Tetra Tech performed a site visit at the Riverside Avenue Site on April 7, 2009. Tetra Tech was accompanied by Dwayne Harrington, EPA Federal On-Scene Coordinator (OSC). The purpose of the visit was to document current site conditions and identify potential sampling areas. The visit confirmed the existence of several AOCs located within Buildings # 7 and #12 that were identified in the preliminary assessment. Most of the areas within the two buildings were accessible; however, some of the stairwells within the buildings were in various states of disrepair and neglect and were deemed inaccessible. These areas were avoided, pending assessors' ability to obtain alternative, safe means of mechanical access for any future assessments.

## 3.0 OBJECTIVE AND DATA USE

The objective of this sampling event is to determine if hazardous substances are present in the following areas: (1) storage or process tanks located on the second and third floors of Building # 7, (2) waters and possibly residual solids that have collected in the basements of both Building #7 and Building # 12, (3) drums found on the site, (4) dry red and blue-colored pigment materials found on the fourth and fifth floors of Building #12. In addition, samples will be collected of any pipe insulation observed in the on-site buildings to determine if asbestos-containing materials (ACM) are present.

## 4.0 PROPOSED ACTIVITIES

This section describes the scope of work; project personnel; methods and procedures for sample collection, sample handling, and delivery to the approved laboratory; and equipment decontamination procedures.

### 4.1 SCOPE OF WORK

Tetra Tech will complete the following tasks during this sampling event:

- Collect up to 25 liquid and/or residual solid samples from any tanks located on the second and third floors of Building #7 and perform preliminary field hazard screening tests. Field screening will consist of testing for flammability, reactivity, corrosivity, water solubility and the presence of oxidizers or cyanide.

- Collect up to two aqueous and, if present two residual solid samples from the basements of Buildings #7 and 12 where pooled water has accumulated.

- Perform inventory and sampling of any drums located on site and perform preliminary field hazard screening tests on any liquids present in the drums. Field screening will consist of testing for flammability, reactivity, corrosivity, water solubility and the presence of oxidizers or cyanide.

- Collect up to two samples of the red and blue-colored dry pigment materials located on the floors of Building #12.

- Obtain no more than 12 bulk asbestos samples from the pipe insulation located on site.

- Collect trip and field blanks for quality assurance (QA) and quality control (QC) purposes.

- Photo document sampling activities and sampling locations and record all sampling locations with a global positioning system.

- Package and ship samples to a laboratory procured through the EPA contract laboratory program (CLP) for target compound list (TCL) VOCs, SVOCs, pesticides, and PCBs and target analyte list (TAL) metals and cyanide. Samples from the drums and tanks will be submitted to a laboratory for Resource Conservation and Recovery Act (RCRA) characteristics analysis and toxicity characteristics leaching procedure (TCLP) analysis for VOCs, herbicides, pesticides and metals.

- Submit a trip report describing all field activities and summarizing validated analytical data obtained during the investigation.

## 4.2 SAMPLE COLLECTION

This section describes the proposed sampling activities and summarizes the sampling locations and sampling methods to be used at the site. All sample identifiers will be designated in accordance with the following format:

**RAS-BW-XX**

The "RAS" prefix refers to the site name – Riverside Avenue Site. The "BW" portion refers to the sample matrix ("BW" for basement water, "BS" for basement solid, "TM" for tank material, "PM" for pigment material, "PACM" for potential asbestos-containing material, "DM" for drum material sample, "TB" for trip blank and "FB" for field blank). The "XX" portion of the suffix refers to the unique sample number assigned at a specific sampling location.

### 4.2.1 Tank and Drum Inventory and Sampling

Tetra Tech will use a simple numbering system to inventory each tank located on the second and third floor of Building #7 and any drums located on the site. Tetra Tech will open each tank or drum and record VOC measurements using a photoionization detector (PID) and record the measurements in the site logbook. Tetra Tech will determine if liquid or residual solids are present in each tank or drum. If present, a liquid sample will be collected in accordance with Tetra Tech Standard Operating Procedure (SOP) 008 "Containerized Liquid, Sludge, and Slurry Sampling" (Tetra Tech 2000a) and preliminary field hazard screening tests will be performed. Field screening will consist of testing for flammability, reactivity, corrosivity, water solubility and the presence of oxidizers or cyanide. Based on the results of the field screening tests liquid and/or solid samples from the drums or tanks may be collected for submission to the CLP laboratory for RCRA characteristics analysis (ignitability, corrosivity, reactivity) and TCLP analysis for VOCs, herbicides, pesticides and metals. Samples from drums or tanks containing similar substances may be composited into one sample for laboratory analysis. Up to five drum samples will be collected and up to 25 tank samples will be collected; the exact number of samples to be obtained will be determined based on the results of the initial field screening tests. Tetra Tech will record the time the sample was collected, the location of the sample, and a description of the sample in the logbook. Each tank will be marked after the sample is collected with the sample identification and analysis performed.

### 4.2.2 Buildings # 7 and # 12 Basement Sampling

Pooled water was observed in the basements of Buildings #7 and #12 during the April 2009 site visit. Tetra Tech will collect up to two aqueous samples of this pooled water to determine if hazardous substances are present. Tetra Tech will collect the aqueous samples by submerging the bottleware below the surface of the water in accordance with SOP No. 009, "Surface Water Sampling" (Tetra Tech 2009a). If present, Tetra Tech will also collect up to two samples of any residual solid material located on the floor of the basements in accordance with Tetra Tech SOP No. 006 "Sludge and Sediment Sampling" (Tetra Tech 2000b). The solid samples will be collected with a hand corer. The aqueous and solid samples will be submitted to the CLP

laboratory for TCL VOCs, SVOCs, pesticides and PCBs analysis and TAL metals and cyanide analysis.

### 4.2.3 Sampling of Red and Blue-Colored Pigments Located in Building #12

Tetra Tech will collect up to two samples of the red and blue-colored pigments observed on the floors of Building #12. The samples will be collected in accordance with Tetra Tech SOP No. 006 "Sludge and Sediment Sampling" (Tetra Tech 2000b). The samples will be submitted to the CLP laboratory for TCL SVOCs, TAL metals and cyanide analysis.

### 4.2.4 Asbestos-Form and Potential Asbestos Containing Material Sampling

Tetra Tech will collect no more than 12 bulk samples from pipe insulation contained in both Buildings # 7 and # 12. Tetra Tech will collect bulk samples through a glove bag, in accordance with Code of Federal Regulations Title 40, Part 763.86 "Asbestos Sampling" (EPA 1987). The sample points on the insulation will be wetted with amended water and a section no greater than 3 square inches will be removed from the sample point and placed in a sample jar. The sample will then be removed from the glove bag by placing it in the glove, pulling the glove inside out, taping the glove and cutting it away from the glove bag with scissors. The glove bag will be wrapped and secured to the pipe with tape around the sampling point and the sample cutting equipment will be disposed. Disposable sampling equipment will be utilized at each sampling point in order to minimize the spread of asbestos fibers and cross-contamination.

## 4.3 SAMPLING SUMMARY

Table 1 summarizes the sample identifiers, matrices, locations, and field QA/QC descriptions for the sampling event. Exact sample locations will be determined in the field based on conditions encountered and observations noted at the time of the sampling event.

**TABLE 2**

**SAMPLING SUMMARY**

| Sample Identifier | Sample Matrix | Sampling Location | Rationale |
|---|---|---|---|
| RAS-PACM-01 through RAS-PACM-12 | Insulation | Pipes located within Buildings # 7 and/or # 12 | Determine if insulation contains asbestos. |
| RAS-BW-01 through RAS-BW-02 | Water | Aqueous samples from the standing water located in Buildings # 7 and #12 basements. | Determine presence of hazardous substances and characterize for disposal. |
| RAS-BS-01 through RAS-BS-02 | Sediment | Solid samples from the sediments located in Buildings # 7 and #12 basements. | Determine presence of hazardous substances and characterize for disposal. |
| RAS-TM-01 through RAS-TM-25 | Liquid / Solid | Sample collected of any liquid or solid present in the tanks located in Building #7 | Determine presence of hazardous substances and characterize for disposal. |
| RAS-PM-01 Through RAS-PM-02 | Solid | Solid samples collected of the red and blue-colored pigments found on the 4$^{th}$ and 5$^{th}$ floors of Building #12 | Determine presence of hazardous substances and characterize for disposal. |
| RAS-DM-01 through RAS-DM-05 | Liquid / Solid | Grab samples from on-site drums. | Determine presence of hazardous substances and characterize for disposal. |
| RAS-TB-01 | Aqueous | Trip blank | QA/QC |
| RAS-FB-01 | Aqueous | Field blank | QA/QC |

## 4.4 KEY PROJECT PERSONNEL

The Tetra Tech project manager for the technical direction document (TDD) is Kevin Scott. Mr. Scott will be responsible and accountable for all aspects of the project scope of work, including achieving the technical, financial, and scheduling objectives for the project. Mr. Scott will communicate directly with the EPA Work Assignment Manager (WAM) for this project, Mr. Dwayne Harrington. Other Tetra Tech personnel proposed for the project are presented in Table

2. The technical or field support personnel working on the project may vary depending on the specific needs of the project, as well as on-site conditions and availability of staff.

**TABLE 3**

**PROPOSED TETRA TECH PROJECT PERSONNEL**

| Project Function | Name | Role |
|---|---|---|
| Project Manager | Kevin Scott | Responsible for implementing all activities identified in the TDD; responsible for developing and implementing the site health and safety plan; has authority to commit resources necessary to complete the work; prepares deliverables required by the TDD; communicates directly with the EPA WAM, the project team, and any other personnel needed to complete the project. |
| Field Support Personnel | Steven Morpus and Chris Burns | Performs necessary sampling or monitoring, as well as other tasks defined in the TDD or assigned by the EPA WAM or the Tetra Tech project manager; communicates directly with the Tetra Tech project manager and, when appropriate, the EPA WAM. |
| Health and Safety Officer | Chris Draper | Oversees and supports development of the site health and safety plan; communicates directly with the Tetra Tech project manager to ensure that all corporate health and safety protocols applicable to the site are being followed. |
| Chemist | Josh Cope | Coordinates with the Tetra Tech project manager regarding the analytical requirements for the project; solicits and procures necessary laboratory services; reviews and validates analytical data, if necessary; communicates directly with the Tetra Tech project manager, field support personnel, EPA WAM, and START program manager as necessary. |
| Graphics and Mapping Specialist | Dan Call | Generates maps and other figures for project deliverables or presentations; assists the Tetra Tech project manager or other personnel when global positioning system activities are required. |
| Financial Manager | Bob Rynkar | Works with the Tetra Tech project manager in planning related to the TDD budget and completion date; enters financial information on the project into the Tetra Tech management information system; prepares regular and special reports to assist the Tetra Tech project manager in managing the project. |
| Quality Assurance Manager | Andy Mazzeo | Responsible for all quality assurance/quality control aspects of the START contract. |

Notes:
EPA = U.S. Environmental Protection Agency
START = Superfund Technical Assessment and Response Team
TDD = Technical Direction Document
Tetra Tech = Tetra Tech EM Inc.
WAM = Work Assignment Manager

## 4.5 SAMPLE HANDLING

Sample handling, packaging, and shipment procedures will be conducted in accordance with Tetra Tech SOP No. 019, "Packaging and Shipping Samples" (Tetra Tech 2008a). All samples

will be shipped to the CLP laboratory assigned by EPA Region 2. All sampling data, including sample time, date, location, type, and sampler, will be recorded on Forms2Lite chain-of-custody and traffic reports and in the site logbook in accordance with Tetra Tech SOP No. 024, "Recording of Notes in Field Logbook" (Tetra Tech 2008b). The Tetra Tech project manager will assure that sample quality and integrity are maintained in accordance with Tetra Tech's Quality Assurance Project Plan (QAPP) for START (Tetra Tech 2006).

### 4.6 EQUIPMENT DECONTAMINATION

Dedicated sampling equipment and personal protective equipment (PPE) will be double-bagged and disposed of with all other used PPE waste produced at the site. Non-dedicated sampling equipment will undergo a gross decontamination with Alconox and distilled water followed by a double rinse with distilled water, in accordance with Tetra Tech SOP No. 002, "General Equipment Decontamination" (Tetra Tech 2009b). All investigation-derived waste (IDW) will be double-bagged and disposed of as dry industrial waste.

## 5.0 ANALYTICAL PARAMETERS

The aqueous and solid samples collected from the drums, tanks, and basements of Buildings #7 and 12 will be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and TAL metals and total cyanide by the assigned EPA CLP laboratory. The samples of the red and blue-colored pigments will be analyzed for TAL metals and cyanide only. PACM samples will be analyzed for the presence of asbestos-form fibers using EPA 600-R-93-116 "Method for the Determination of Asbestos in Bulk Building Materials using Polarized Light Microscopy" and EPA Method 600/R-93/116 Section 2.5 (Transmission Electron Microscopy (TEM) Percent by Mass). Table 3 summarizes analytical parameters, including the sample matrix, analytical parameter, analytical method, sample containers and preservatives, detection limits, and maximum holding times for the samples proposed for collection during this sampling event.

**TABLE 4**

**ANALYTICAL PARAMETERS AND METHODS**

| Matrix | Analysis | Analytical | Container | Preservative | Detection | Maximum |
|---|---|---|---|---|---|---|

| | | Method | (per location) | | Limit | Holding Time |
|---|---|---|---|---|---|---|
| Aqueous | VOC | CLP SOW OLM 04.3 | Three 40-mL vials | HCl pH<2 and ice | CRQL | 14 days |
| | SVOC Pesticide/PCBs | CLP SOW OLM 04.3 | Four 1-L ambers | Ice | CRQL | SVOC, PCBs, and pesticides – 7 days to extraction, 40 days to analysis |
| Solid | VOC | CLP SOW OLM 04.3 | One 4-ounce jar with septum | Ice | CRQL | 14 days |
| | SVOC Pesticide/PCBs | CLP SOW OLM 04.3 | One 8-ounce jar | Ice | CRQL | SVOC, PCBs, and pesticides – 7 days to extraction, 40 days to analysis |
| | Metals Cyanide | CLP SOW ILM 05.4 ICPAES+Hg+CN | One 8-ounce jar | Ice | CRDL | 180 days for all metals (except mercury – 28 days; cyanide –12 days) |
| Drum Tank Samples | RCRA Hazardous Waste Characterization (TCLP VOCs, SVOCs, herbicides, pesticides and metals) | EPA Method 1311 Corrosivity, Flashpoint, Reactivity | One 8-ounce jar | Ice | CRQL CRDL | 14 days |

CLP = Contract Laboratory Program
CN = Cyanide
CRDL = Contract-required detection limit
CRQL = Contract-required quantitation limit
HCl = Hydrochloric acid
Hg = Mercury
ICPAES = Inductively coupled plasma atomic emission spectroscopy
ILM = Inorganic low to medium
L = Liter
mL = Milliliter
NaOH = Sodium hydroxide
PCB = Polychlorinated biphenyl
RCRA = Resource Conservation and Recovery Act
SOM = Superfund Organic Method
SOW = Statement of Work
SVOC = Semivolatile organic compound
TCLP = Toxicity Characteristic Leaching Procedure
VOC = Volatile organic compound

# 6.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

This section describes the QA/QC procedures for personnel during the site sampling event, including responsibilities, field QC, laboratory QC, and data validation and evaluation and management.

## 6.1 RESPONSIBILITY

The Tetra Tech project manager, Kevin Scott will be responsible for ensuring that sample quality and integrity are maintained in accordance with Tetra Tech's QAPP for START (Tetra Tech 2006).

## 6.2 FIELD QUALITY CONTROL

Each sampling location will be noted in the site logbook in accordance with Tetra Tech SOP No. 024, "Recording of Notes in Field Logbook" (Tetra Tech 2008b). Field and trip blank samples will be collected to verify that the samples were properly handled during sample collection, sample shipment, and laboratory analysis.

## 6.3 LABORATORY QUALITY CONTROL

Samples will be shipped to the EPA CLP laboratory assigned by EPA Region 2. Laboratory QC measures will consist of all QC elements identified in the laboratory procurement Statement of Work (SOW) and will include completion of all forms and deliverables required in the SOW.

## 6.4 DATA VALIDATION

All analytical data will be validated in accordance with EPA Region 2 CLP SOW functional guidelines for data review.

## 6.5 DATA EVALUATION AND MANAGEMENT

This section describes how Tetra Tech will: (1) evaluate the data generated from the sampling event, (2) determine whether the data are representative of site conditions and collect enough for

use in making confident risk management decisions, and (3) ensure that the data are secure and retrievable.

### 6.5.1 Data Evaluation

Tetra Tech will review the analytical package to determine whether any major deficiencies were encountered during analysis and to ensure that the data are interpreted correctly. The data gathered during this sampling event will be forwarded to the EPA WAM for further evaluation. The data will be presented by Tetra Tech to the EPA in the form of a trip report that summarizes field activities and analytical data obtained from the sampling and analysis described in this SAP.

### 6.5.2 Data Representativeness and Completeness

This SAP is designed to obtain data representative of site conditions. If sampling activities vary significantly from this plan because of unexpected conditions in the field or other unforeseeable factors, Tetra Tech will discuss how those variations affect data representativeness with the EPA WAM and will include a discussion of the matter in the trip report.

### 6.5.3 Data Management

Tetra Tech will request that the laboratory submit the analytical data in electronic form as well as in the required hard copy analytical data package. Tetra Tech will compare the electronic data deliverables with the hard copy data package to ensure their consistency. When the Tetra Tech chemist has approved the data set with the appropriate data qualifiers, the electronic data will be released to the Tetra Tech project manager for reporting. Tetra Tech will use the data to prepare the trip report for the project. All electronic data will be stored in a Microsoft (MS) Excel or Access database for future retrieval and reference based on the WAM's requirements. If the analytical data are not available from the laboratory in electronic form, Tetra Tech will manually enter the data into an MS Excel or Access database. Each hard copy data package will be kept in the project file in the Tetra Tech office in Boothwyn, Pennsylvania, until the data package is officially transferred to EPA.

## 7.0 DELIVERABLES

When sampling and the appropriate QA/QC procedures are complete, Tetra Tech will submit a draft trip report to EPA that summarizes field activities and the analytical results obtained from this sampling event.

## 8.0 SCHEDULE

The project schedule for this site removal assessment is provided below in Table 4.

**TABLE 5**

**PROJECT SCHEDULE**

| Task | Completion Time Frame |
|---|---|
| Conduct site visit | April 7, 2010 |
| Submit Draft SAP | April 22, 2010 |
| Submit Final SAP | May 4, 2010 |
| Develop site health and safety plan | May 6, 2010 |
| Mobilize to site to conduct sampling activities | To be determined |
| Draft Trip Report | One month after receipt of validated analytical data |

## 9.0 REFERENCES


Birdsall Services Group Inc./PMK Group, Inc. Draft Site Investigation Report. 1700-1712 & 1702-1716 McCarter Highway. Block 614, Lots 63 and 64. PMK Group #092976. October 16, 2009.

Environmental Protection Agency (EPA). Code of Federal Regulations Title 40, Part 763.86 "Asbestos Sampling" Oct. 30, 1987.

Tetra Tech EM Inc. (Tetra Tech). "Containerized Liquid, Sludge, or Slurry Sampling." SOP No. 008. January 2000a.

Tetra Tech. "Sludge and Sediment Sampling." SOP No. 006. January 2000b.

Tetra Tech. "Quality Assurance Project Plan (QAPP) for START." Boothwyn, Pennsylvania. November 2006.

Tetra Tech. "Packaging and Shipping Samples." SOP No. 019. December 2008a.

Tetra Tech. "Recording of Notes in Field Logbooks." SOP No. 024. December 2008b.

Tetra Tech. "Surface Water Sampling." SOP No. 009. June 2009a.

Tetra Tech. "General Equipment Decontamination." SOP No. 002. Revision No. 3. June 2009b.

Tetra Tech. Site Reconnaissance Field Notes. April 7, 2010.

United States Geological Survey. 7.5-Minute Series Topographic Map for Elizabeth, New Jersey, 1981 and Orange, New Jersey, 1981.

Weston Solutions, Inc. Preliminary Assessment Report. 1700-1712 & 1702-1716 McCarter Highway. May 2009

# APPENDIX A

# TETRA TECH STANDARD OPERTING PROCEDURES